DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1001	1012

Eric Watson 3/26/10
REGISTERED CIVIL ENGINEER DATE

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eric Watson No. 64273 Exp. 6-30-11 CIVIL — STATE OF CALIFORNIA

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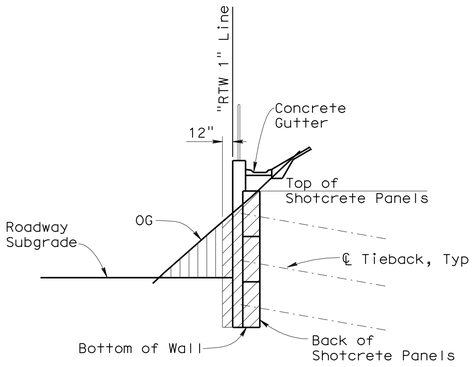
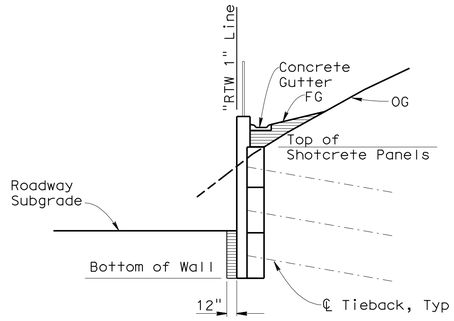
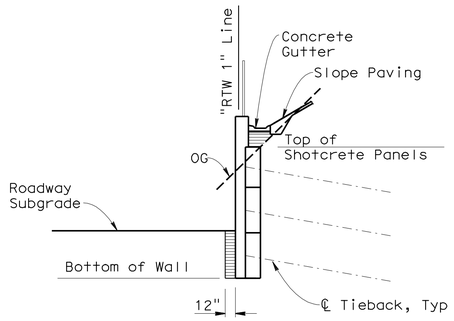


STRUCTURE EXCAVATION PAYMENT LIMITS

NO SCALE



NO SLOPE PAVING



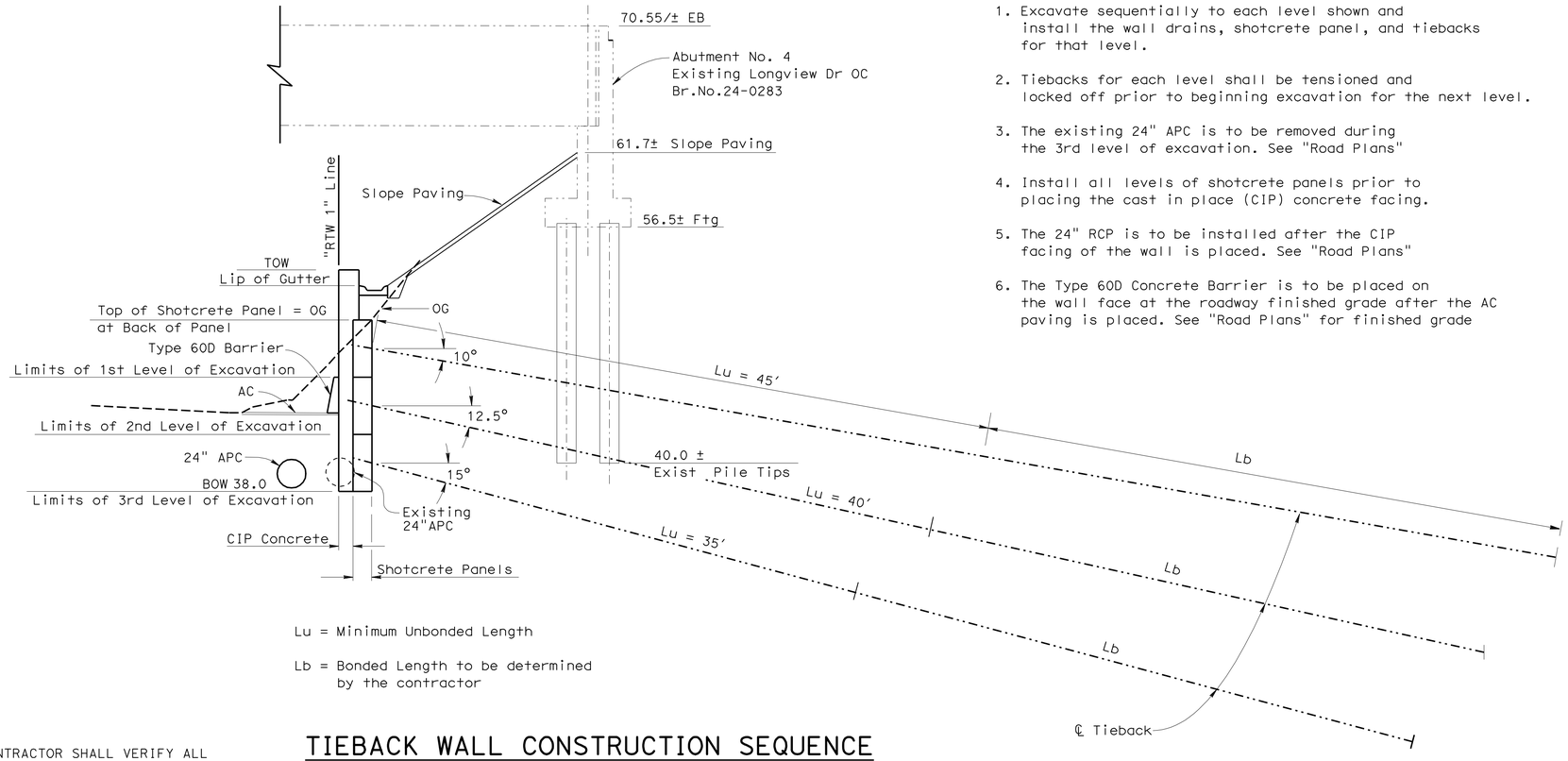
WITH SLOPE PAVING

STRUCTURE BACKFILL PAYMENT LIMITS

NO SCALE

Legend:

- Structure Excavation, Tieback Wall
- Structure Backfill, Tieback Wall
- Roadway Excavation



Lu = Minimum Unbonded Length

Lb = Bonded Length to be determined by the contractor

TIEBACK WALL CONSTRUCTION SEQUENCE

1" = 5'

Wall Construction Sequence:

1. Excavate sequentially to each level shown and install the wall drains, shotcrete panel, and tiebacks for that level.
2. Tiebacks for each level shall be tensioned and locked off prior to beginning excavation for the next level.
3. The existing 24" APC is to be removed during the 3rd level of excavation. See "Road Plans"
4. Install all levels of shotcrete panels prior to placing the cast in place (CIP) concrete facing.
5. The 24" RCP is to be installed after the CIP facing of the wall is placed. See "Road Plans"
6. The Type 60D Concrete Barrier is to be placed on the wall face at the roadway finished grade after the AC paving is placed. See "Road Plans" for finished grade

Tieback Length Constraints:

1. The overall length (Lu + Lb) of converging tiebacks at stations 9+99.3 through 10+35.8 and stations 11+35.3 through 11+48.4 is limited to 100 ft to avoid group action in the tieback anchorage zones.
2. The overall length of tiebacks near Begin Wall is also limited by the proximity to the pumphouse and drainage bay, see"General Plan" and "Foundation Plan".
3. The overall length of all tiebacks is limited by the right of way beyond the "S1" Line and "S3" Line, see "Road Plans".

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

	BY	CHECKED
DESIGN	Mark Simonsen	Daniel Sessions
DETAILS	B Huddleston/J Zhou	Daniel Sessions
QUANTITIES	Yihwin Huang	Jie Tang

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 1

BRIDGE NO. 24E0006
POST MILE 9.4

RETAINING WALL 1
DETAILS NO. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10/04/08 | 10/21/08 | 10/31/08 | 11/07/08 | 02/25/09 | 03/26/10

SHEET 8 OF 19

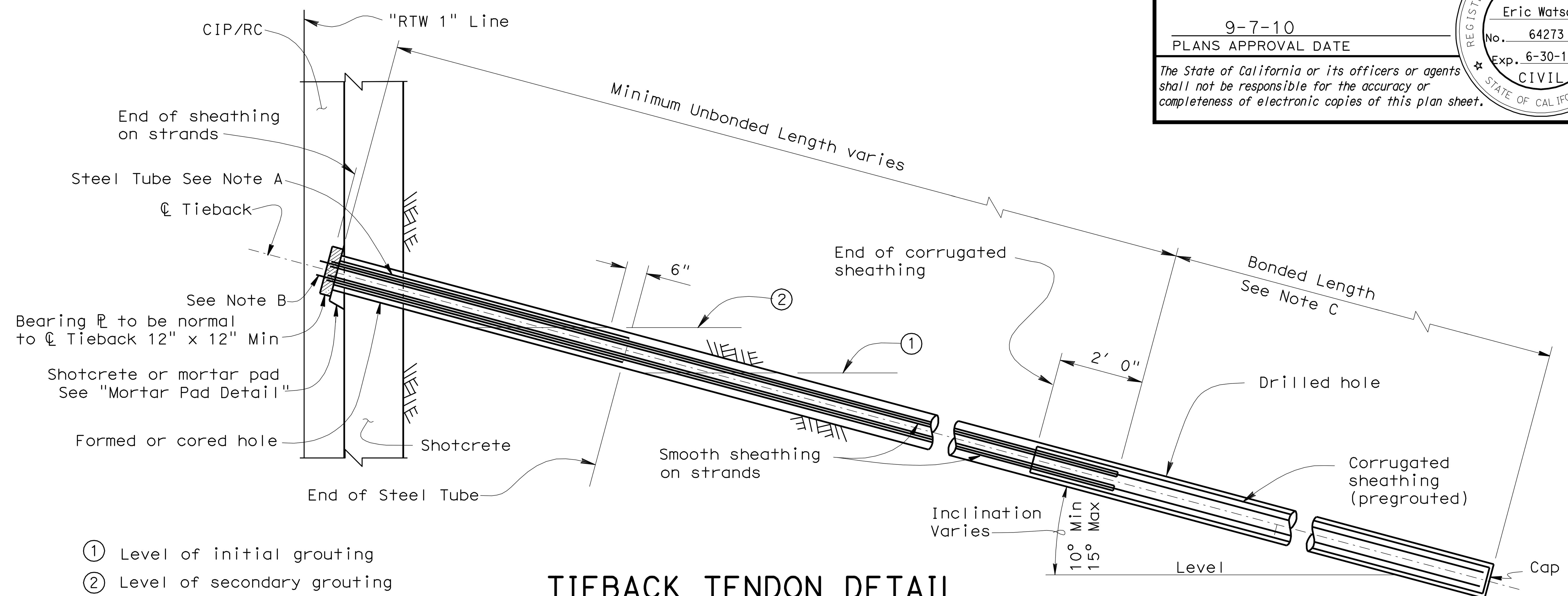
FILE => 24e0006-g-rwdt02.dgn

USERNAME => rmikesell DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:38

Eric Watson 3/26/10
REGISTERED CIVIL ENGINEER DATE

9-7-10
PLANS APPROVAL DATE

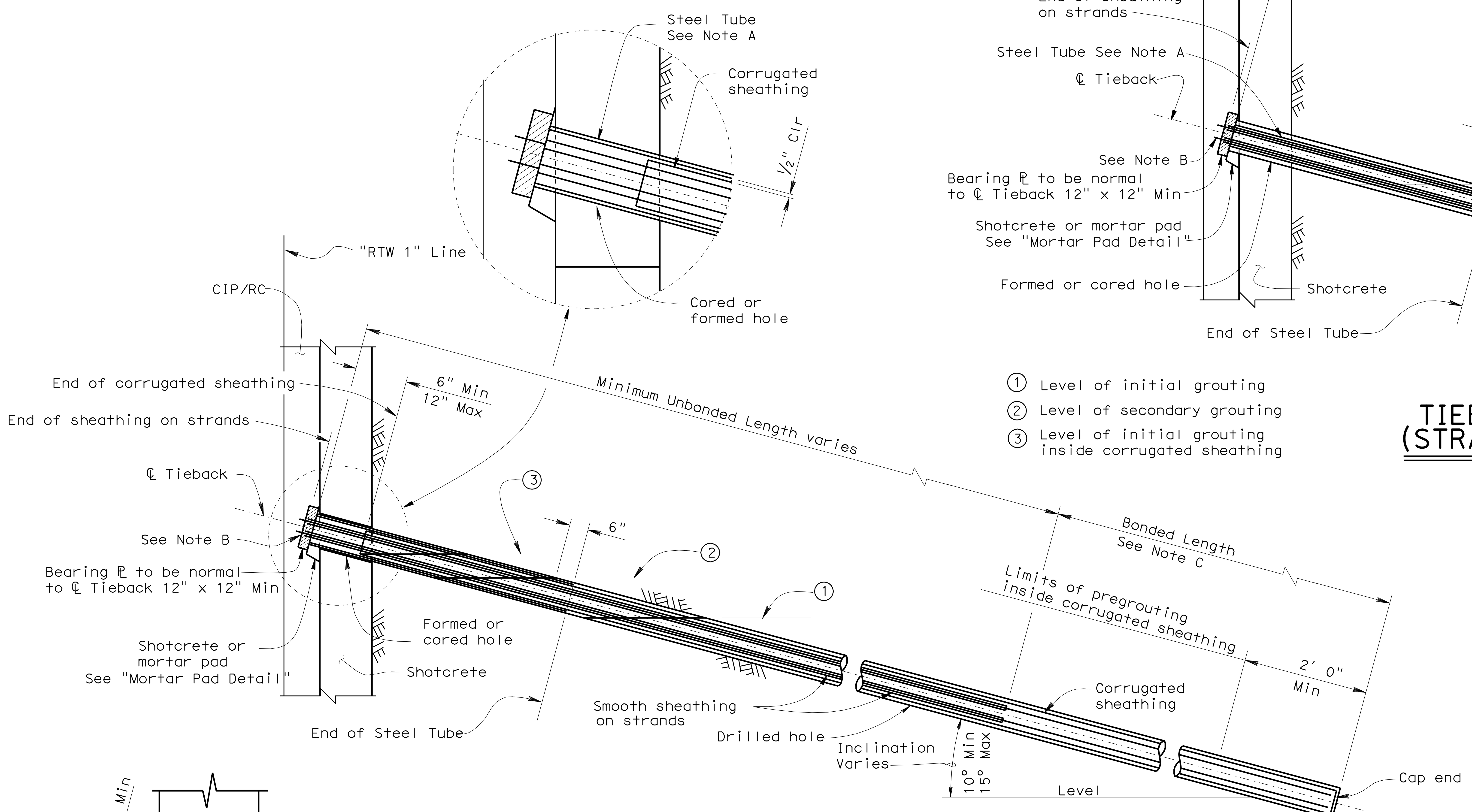
REGISTERED PROFESSIONAL ENGINEER
Eric Watson
No. 64273
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA



① Level of initial grouting
② Level of secondary grouting
③ Level of initial grouting inside corrugated sheathing

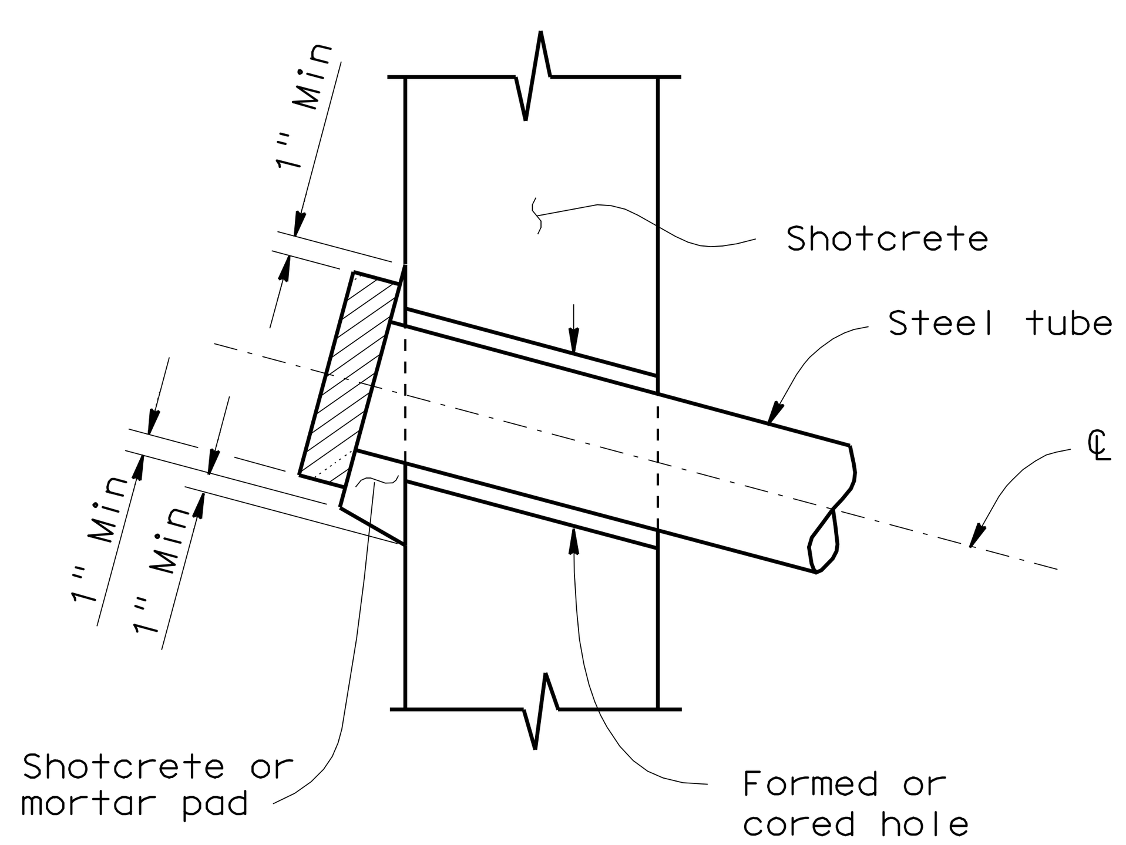
TIEBACK TENDON DETAIL (STRAND)-(ALTERNATIVE A)

NO SCALE



TIEBACK TENDON DETAIL (STRAND) - (ALTERNATIVE B)

NO SCALE



MORTAR PAD DETAIL

NO SCALE

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTES

Note A Steel tube welded to bearing plate (Min length = 4' , Min thickness = 3/16".). Galvanize after fabrication.

Note B 2" Min concrete cover over tieback anchorage and tendon.

Note C The Bonded Length shall be determined by the Contractor

PRESTRESSING (TIEBACKS)

PRESTRESSING STEEL:

Strands - ASTM designation: A416

T = Design force per Tieback. See Table

f_{pu} = Minimum tensile strength of prestressing steel (kips/in^2)

A_s (Min) = Minimum cross sectional area of prestressing steel in Tieback tendon.

$$A_s\ (\text{Min}) = \frac{1.5\ T}{0.75\ f_{pu}}$$

MINIMUM SHOTCRETE STRENGTH:

$f'c$ = 4000 psi @ 28 days

f'_{ci} = 3600 psi at time of stressing of tendons

Table of Design Forces in Tiebacks

"RTW 1"Station Limits	Tieback Design Force T kips
9+99.3 to 10+27.3	T = 87 kips
10+35.8 to 11+26.5	T = 110 kips
11+35.4 to 11+77.0	T = 87 kips

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1003	1012

Eric Watson 3/26/10
REGISTERED CIVIL ENGINEER DATE

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eric Watson — No. 64273 — Exp. 6-30-11 — CIVIL — STATE OF CALIFORNIA

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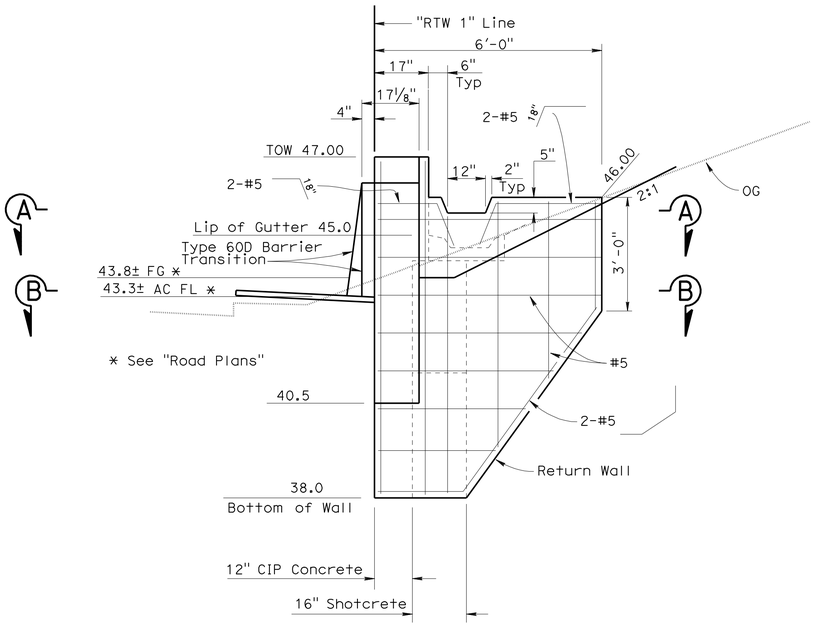
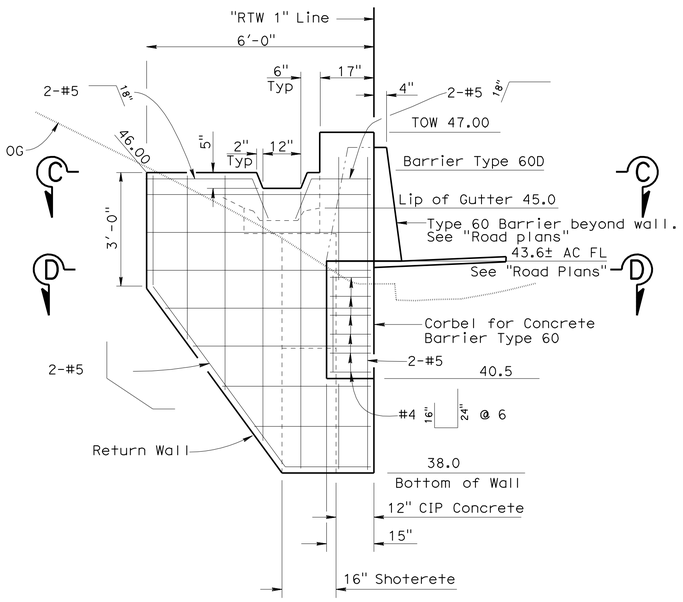


RETURN WALL ELEVATION AT BEGIN WALL

½" = 1'-0"

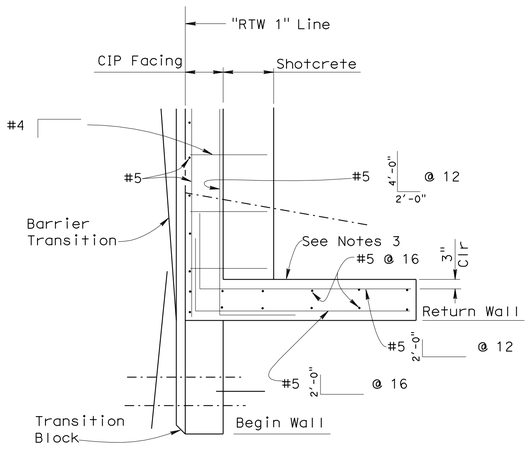


RETURN WALL ELEVATION AT END WALL

½" = 1'-0"

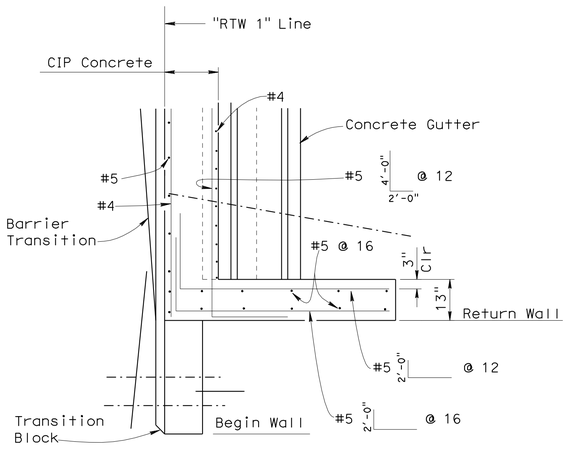
Notes:

1. Reinforcement for barrier, shotcrete panels, and transition block is omitted for clarity.
2. The contractor shall verify all controlling field dimensions before ordering or fabricating any material.
3. Cast the inside face of the portion of the return wall below the top of the shotcrete panel against undisturbed earth.
4. Form the inside face of the return wall above the level of the ditch.



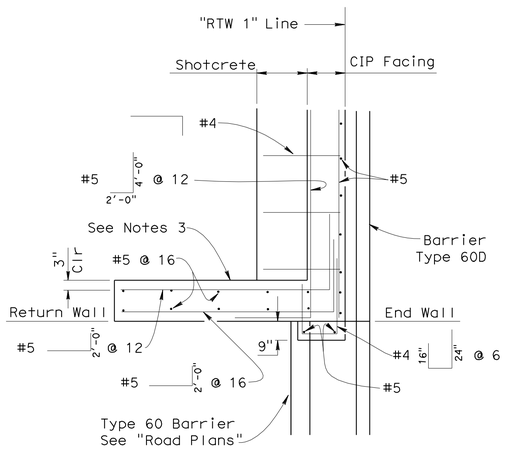
SECTION B-B

½" = 1'-0"



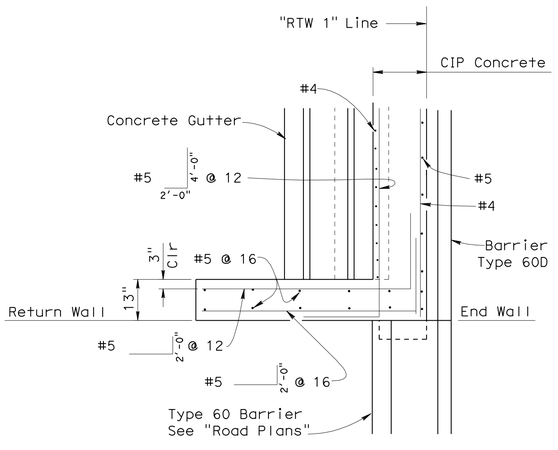
SECTION A-A

½" = 1'-0"



SECTION D-D

½" = 1'-0"



SECTION C-C

½" = 1'-0"

DESIGN	BY Mark Simonsen	CHECKED Daniel Sessions	
DETAILS	BY Jinrong Zhou	CHECKED Daniel Sessions	
QUANTITIES	BY Yihwin Huang	CHECKED Jie Tang	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 1

BRIDGE NO. 24E0006
POST MILE 9.4

RETAINING WALL 1
DETAILS NO. 4

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10/23/08 | 10/31/08 | 11/22/08 | 11/04/08 | 11/05/08 | 12/31/08 | 02/25/09

SHEET 10 OF 19

USERNAME => tfmikesl DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:38

FILE => 24e0006-g-rwdt04.dgn

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03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1004	1012

Eric Watson 3/26/10
REGISTERED CIVIL ENGINEER DATE

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eric Watson No. 64273 Exp. 6-30-11 CIVIL — STATE OF CALIFORNIA

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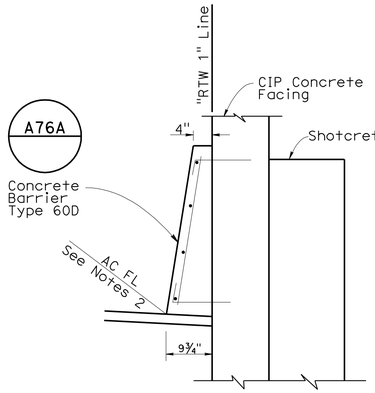
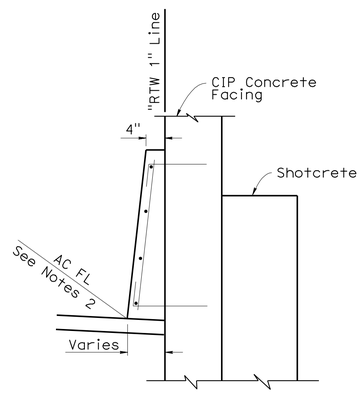
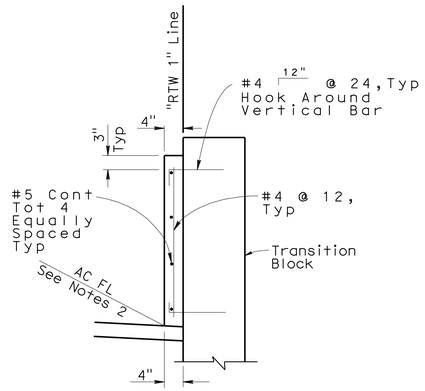


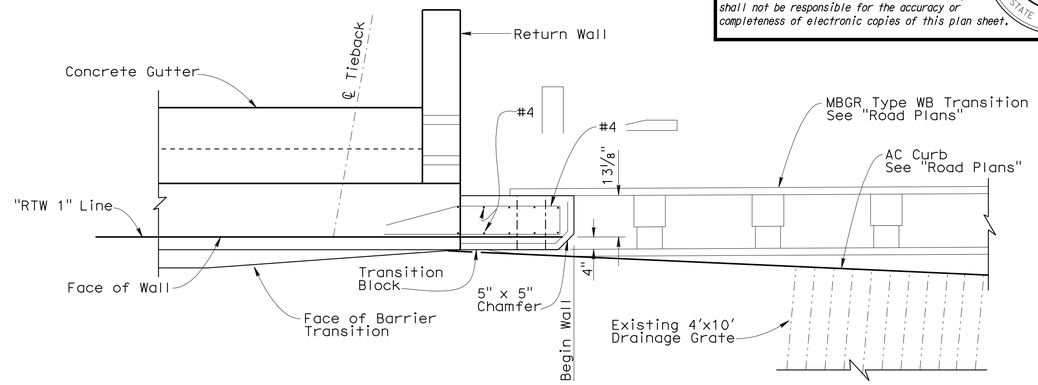
SECTION D-D
¾" = 1'-0"



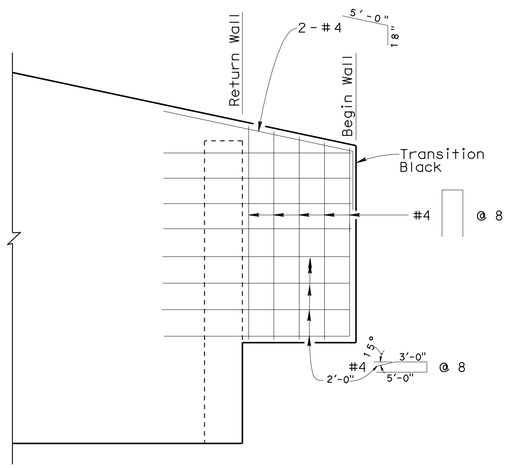
SECTION C-C
¾" = 1'-0"



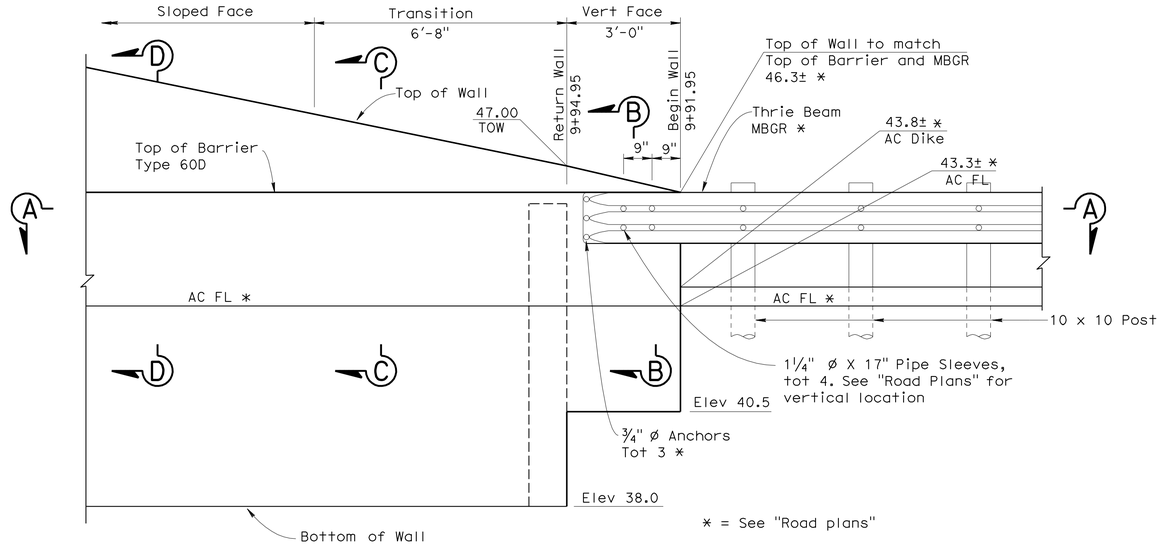
SECTION B-B
¾" = 1'-0"



VIEW A-A
½" = 1'-0"



WALL ELEVATION
½" = 1'-0"



ELEVATION AT BEGIN WALL FACING THE WALL
½" = 1'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Notes:

1. Wall reinforcing omitted for clarity
2. Place Type 60 Concrete Barrier on finished AC Paving. See "Road Plans"

DESIGN	BY Mark Simonsen	CHECKED Daniel Sessions	
DETAILS	BY Jinrong Zhou	CHECKED Daniel Sessions	
QUANTITIES	BY Yihwin Huang	CHECKED Jie Tang	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 1

BRIDGE NO.	24E0006
POST MILE	9.4

RETAINING WAL 1
DETAILS NO. 5

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES										SHEET	OF
10/27/08	11/07/08	11/04/08	12/17/08	02/25/09						11	19

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USERNAME => trmikesl DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:38

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03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1005	1012

Eric Watson 3/26/10
REGISTERED CIVIL ENGINEER DATE

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eric Watson — No. 64273 — Exp. 6-30-11 — CIVIL — STATE OF CALIFORNIA

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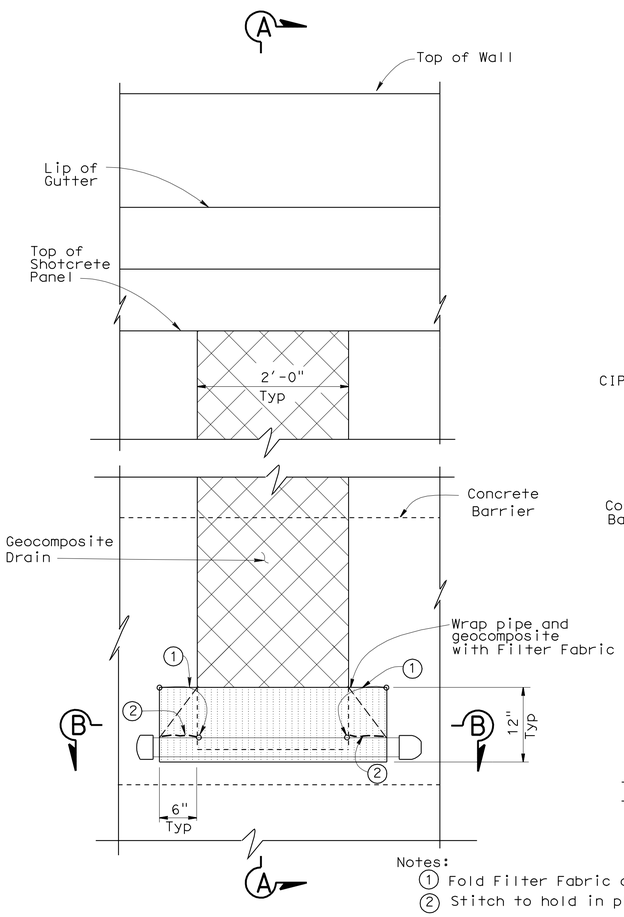
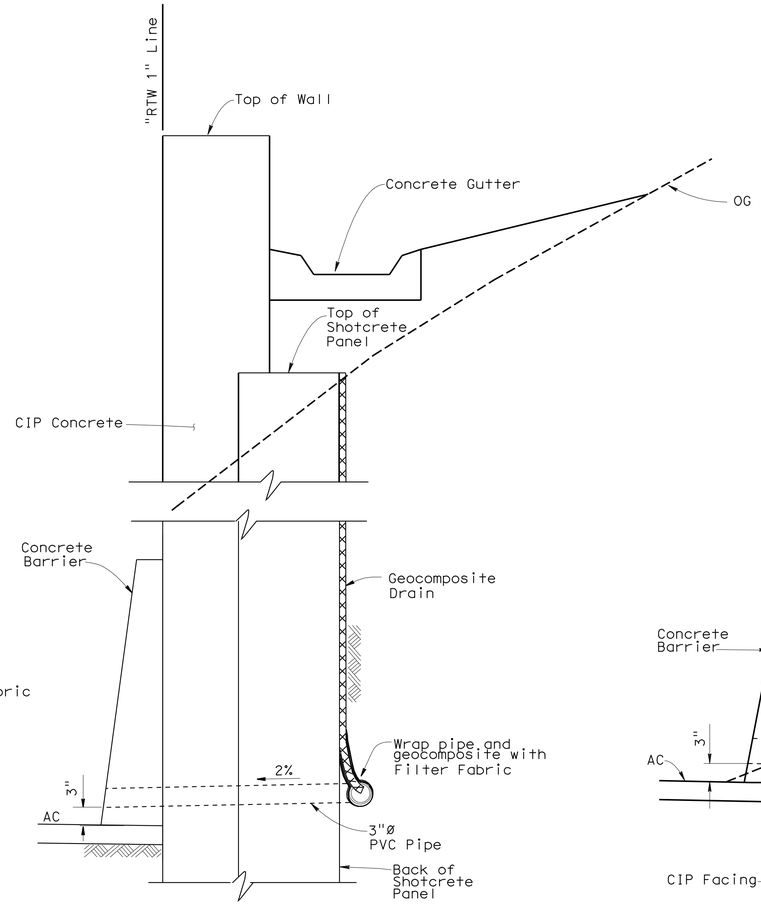
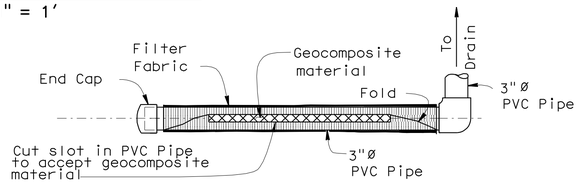


REAR WALL ELEVATION
1" = 1'



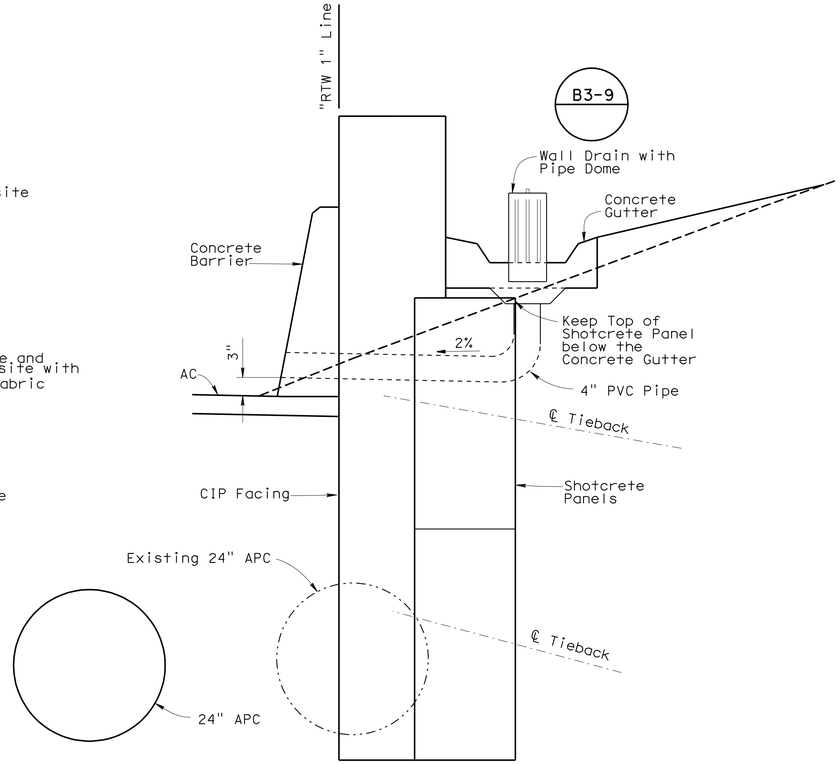
SECTION A-A
1" = 1'



SECTION B-B
NO SCALE

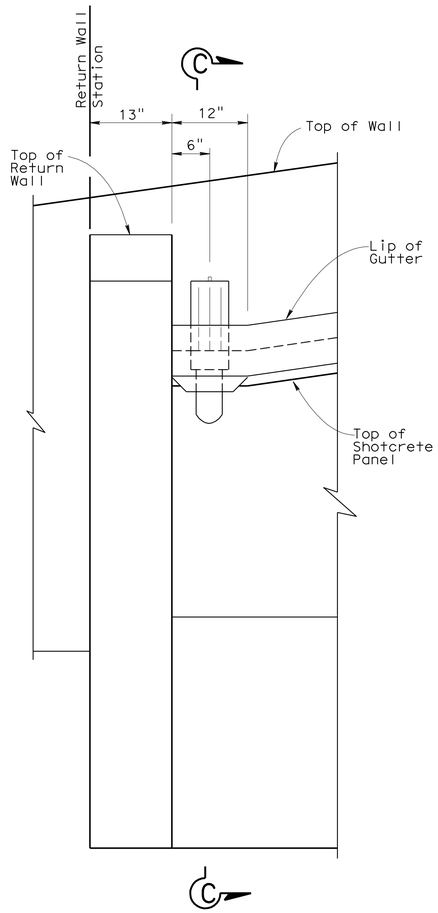
NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

GEOCOMPOSITE DRAIN DETAILS



SECTION C-C
1" = 1'

Begin wall shown
End wall similar



REAR ELEVATION
1" = 1'

GUTTER DRAIN DETAILS

	DESIGN	BY Mark Simonsen	CHECKED Daniel Sessions	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO. 24E0006	RETAINING WALL 1	
	DETAILS	BY Jinrong Zhou	CHECKED Daniel Sessions			POST MILE 9.4	DETAILS NO. 6	
	QUANTITIES	BY Yihwin Huang	CHECKED Jie Tang					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES									SHEET	OF
10/29/08	11/04/08	11/04/08	12/16/12	02/25/09					12	19

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03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1006	1012

Eric Watson 3/26/10
REGISTERED CIVIL ENGINEER DATE

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Eric Watson
No. 64273
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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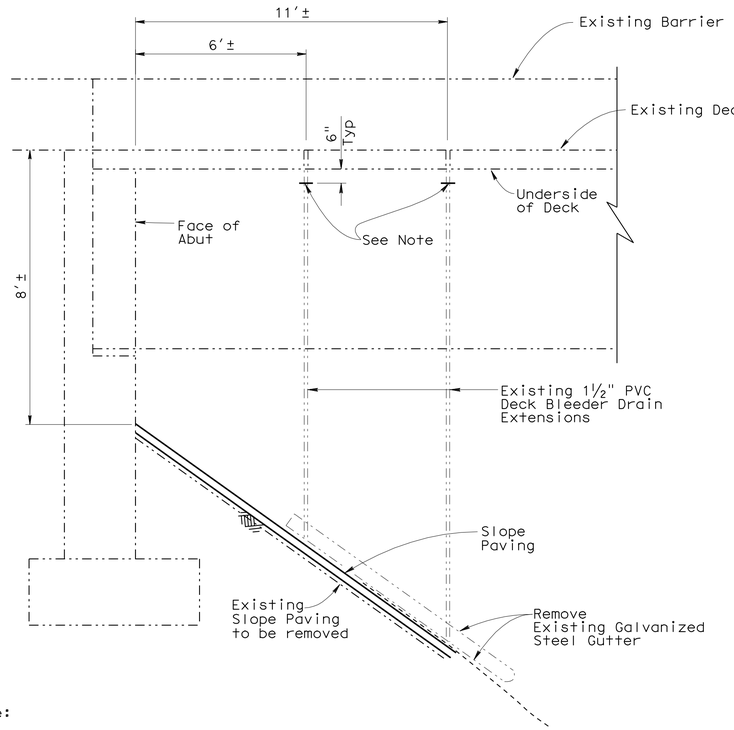

Note:

Cut the existing 1½" PVC drains off 6" below the deck soffit. Remove the lower portion of the drain pipes and the steel gutter

DECK BLEEDER DRAIN MODIFICATIONS

⅜" = 1′-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY Mark Simonsen	CHECKED Daniel Sessions	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 1	BRIDGE NO. 24E0006
DETAILS	BY Jinrong Zhou	CHECKED Daniel Sessions			POST MILE 9.4
QUANTITIES	BY Yihwin Huang	CHECKED Jie Tang			

RETAINING WALL 1
DETAILS NO. 7

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 10/29/08 10/31/08 11/03/08 12/16/08 02/25/09

SHEET 13 OF 19

FILE => 24e0006-g-rwdt07.dgn

USERNAME => trmirkes1 DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:39

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1007	1012

Eric Watson 3/26/10
REGISTERED ENGINEER - CIVIL

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Eric Watson, No. 64273, Exp. 6-30-11, CIVIL, STATE OF CALIFORNIA

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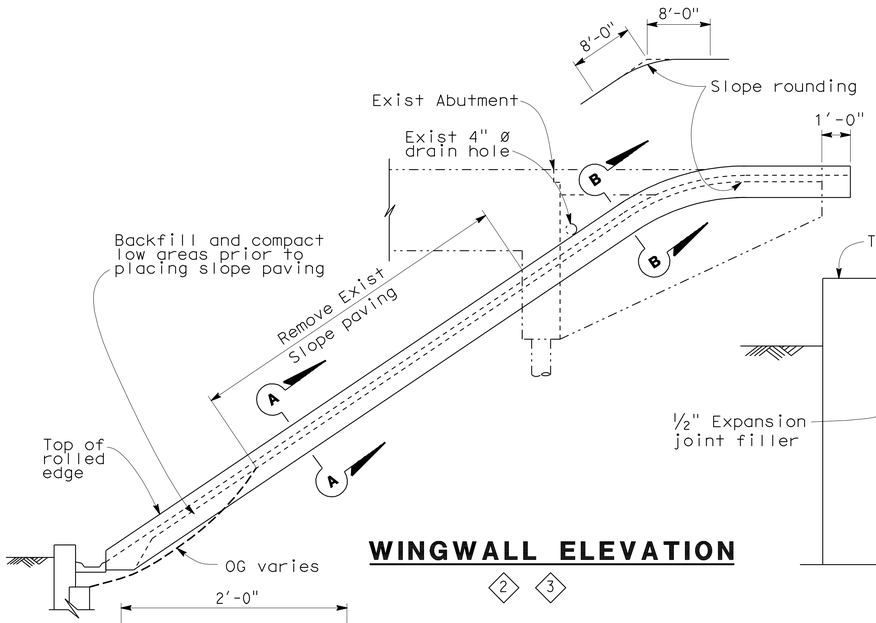
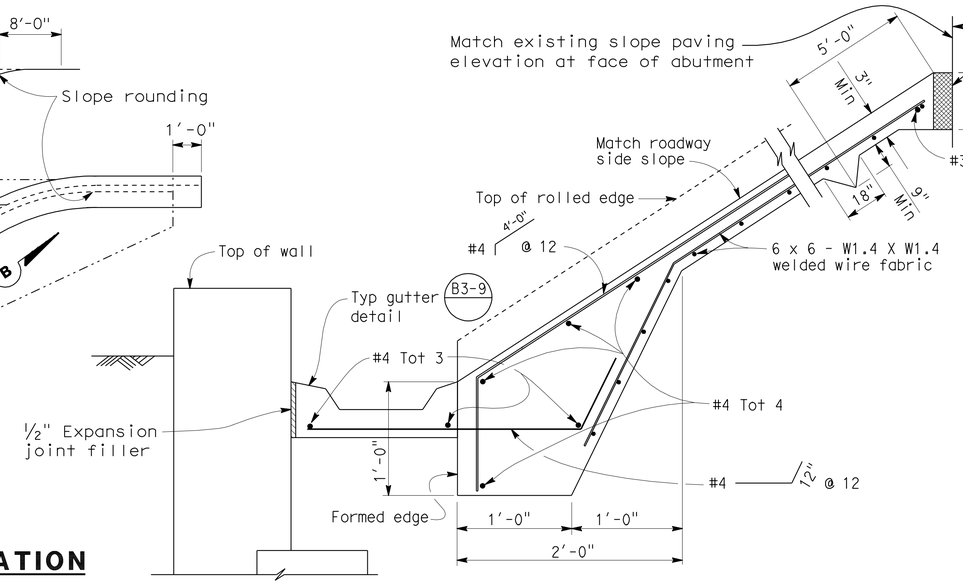


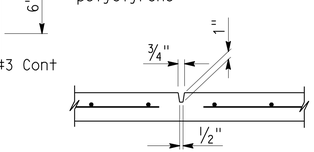
WINGWALL ELEVATION

2 3

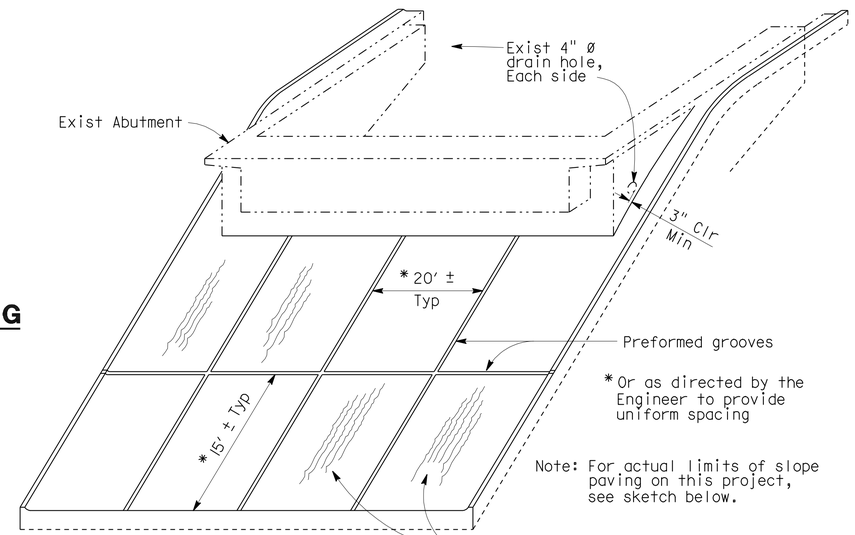


TYPICAL SECTION - CONCRETE PAVING WITH CONCRETE GUTTER

3

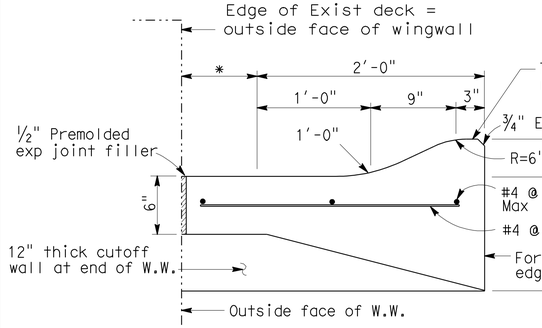


PREFORMED GROOVE

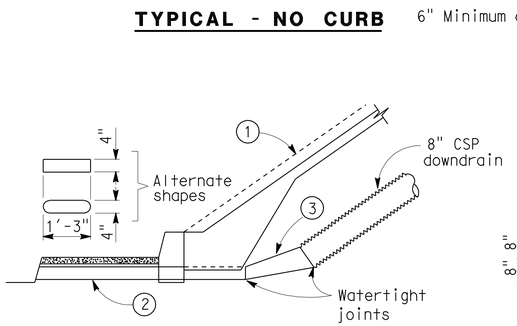


* Or as directed by the Engineer to provide uniform spacing

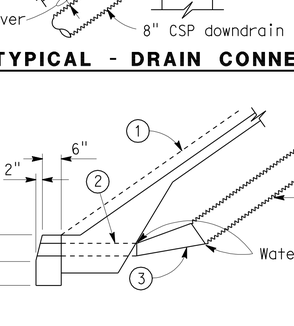
Note: For actual limits of slope paving on this project, see sketch below.



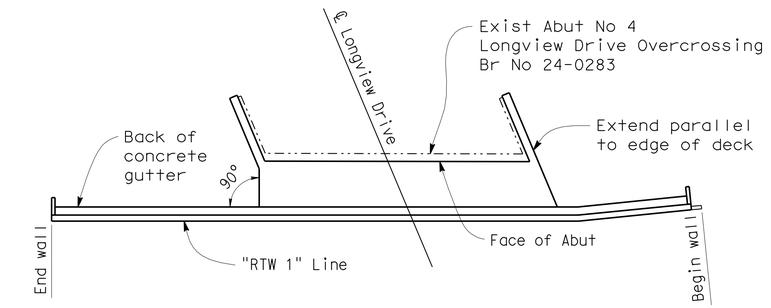
SECTION A-A



TYPICAL - NO CURB



TYPICAL - DRAIN CONNECTION



PICTORIAL VIEW OF TYPICAL INSTALLATION

2

LIMITS OF SLOPE PAVING

NO SCALE

SECTION B-B

2

TYPICAL - WITH SIDEWALK

TYPICAL - WITH CURB

DRAINAGE DETAILS

Note: Drainage details are only applicable when (B0-3 3-5) is indicated on detail sheets.

1. Top of rolled edge
2. Conduit: 0.064" galv corrugated steel or 0.109" smooth galv steel
3. Taper: 0.064" / 0.109" smooth galv steel
4. 4" Perforated steel pipe (0.064" thick) underdrain behind abutment. Connect to downdrain as shown on limits of Slope Paving & Drainage layout.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

* This dimension becomes zero when edge of deck is at outside face of W.W.

SPECIAL DETAILS

STANDARD DRAWING				
RELEASE DATE **Revised**	DESIGN	BY	CHECKED	RELEASED BY
FILE NO. **xs4-210**	DETAILS	BY R. YEE	CHECKED	Roberto Lucelli, OFFICE CHIEF
	SUBMITTED	BY C.W. PURKISS	DRAWING DATE 3/89	

1. Dimensions converted from SI to English.
2. Existing Abutment
3. Gutter Detail

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

CU 03
EA 3797U1

BRIDGE NO.	24E0006
POST MILE	9.4

RETAINING WALL 1
SLOPE PAVING - FULL SLOPE

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 10/29/08 11/04/08 11/11/08 12/11/08 02/25/09

SHEET 14 OF 19

DS OSD 2147A (METRIC) (REV. 2/25/97)

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS 0 10 20 30 40 50 60 70 80 90 100

USERNAME => trmikesl

DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:33

24e0006-u-miscdt01

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1008	1012

1-12-09
REGISTERED CIVIL ENGINEER

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
KENNETH G. SORENSEN
No. GE 2520
Exp. 9-30-10
GEOTECHNICAL
STATE OF CALIFORNIA

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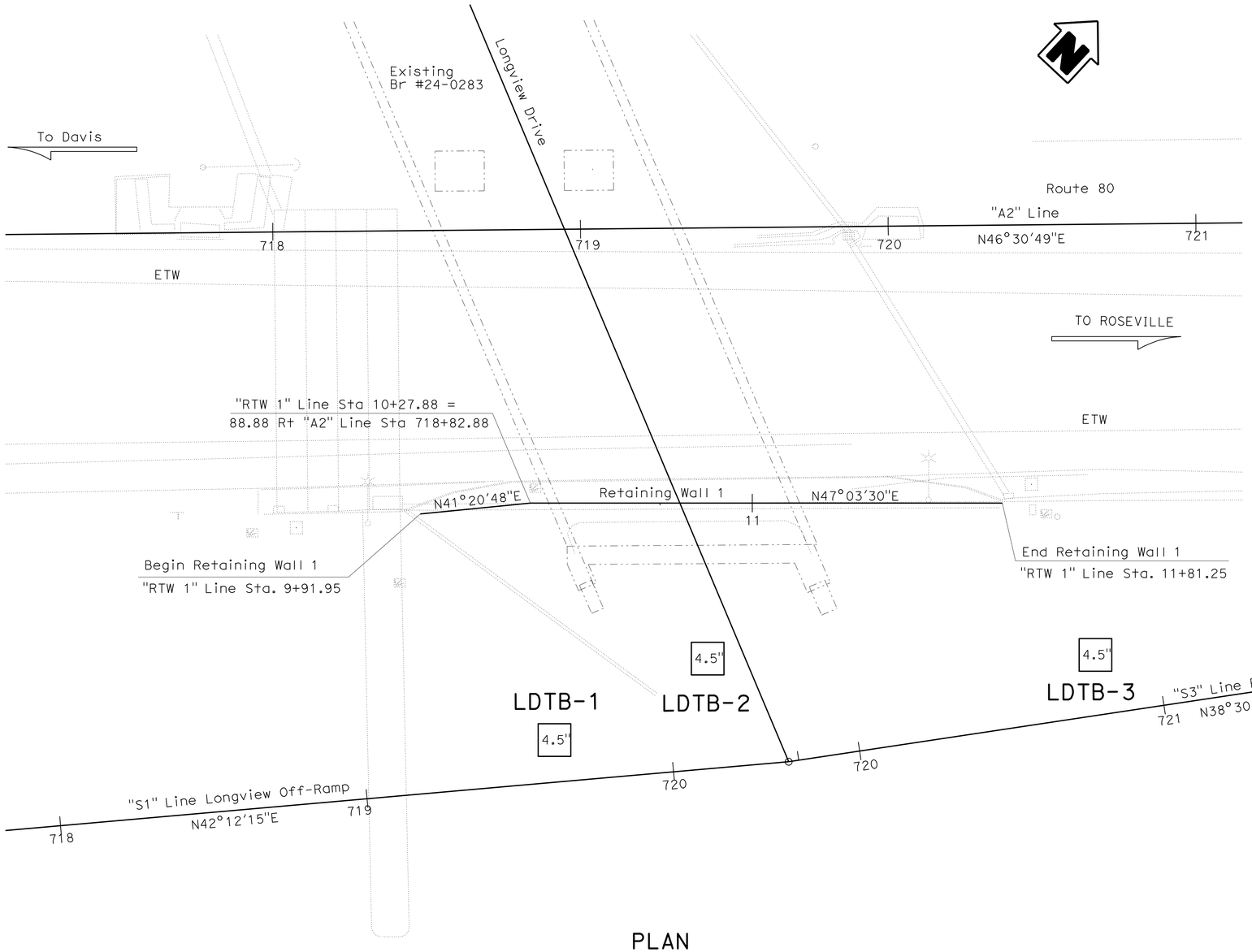
SACRAMENTO, CA 95826



PLAN
1"=20'

SURVEY CONTROL

PHHV2232 (Not Shown On Plan)
Fnd Aerial Photo Control "X"
586.79 Lt. ℄ "A2" Line Rte 80
Sta. 717+58.39
N 1995872.85
E 6732986.43
Elev. = 60.77

PHHV2233 (Not Shown On Plan)
Fnd Aerial Photo Control "X"
84.61 Rt. ℄ "A2" Line Rte 80
Sta. 715+90.32
N 1995270.06
E 6733326.53
Elev. = 45.80

Notes:

1. This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007).
2. 2" samples were taken using a California split-barrel sampler with an inside diameter (I.D.) of 2" and an outside diameter (O.D.) of 2.5".
3. The soil descriptions and classifications, including consistency and relative density descriptors, used by the field personnel for the exploration boreholes shown on these sheets are generally based on the Soil and Rock Logging, Classification, and Presentation Manual, Division of Engineering Services, Geotechnical Services, (June 2007).
4. Soil Colors were determined using Munsell Soil Color Charts (1994, Revised Edition).
5. Test Borings utilized an Automatic Hammer to advance the sampler using a 140 lb hammer with 30 inch drop. The SPT N-values shown on the Log of Test Boring (LOTB) sheets were actual values recorded in the field. The relative/apparent density descriptors shown on the LOTB sheets are based on the actual SPT N-values recorded in the field. Consistency descriptors shown on the LOTB sheets are based on the actual SPT N-values or the pocket penetrometer readings.
6. 1.4" samples were taken using a SPT split-barrel sampler with an inside diameter (I.D.) of 1.4" and an outside diameter (O.D.) of 2".
7. Blowcounts 50/5" means 50 blows per 5" penetration.

GEOTECHNICAL SERVICES OVERSIGHT: J. Martin

FUNCTIONAL SUPERVISOR
NAME: K. Sorensen

DRAWN BY: A. Sanchez
CHECKED BY: G. Zhang

FIELD INVESTIGATION BY:
G. Zhang

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 1

BRIDGE NO. 24E0006
POST MILES 9.4

RETAINING WALL 1
LOG OF TEST BORINGS 1 OF 5

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03240
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 1-14-08, 12-22-08, 1-09-09, 1-12-09

SHEET 15 OF 19

FILE => 24e0006-z-ltb01.dgn

USERNAME => ttmikes| DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:39

NOTE: This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007).

FOR PLAN VIEW AND ADDITIONAL NOTES, SEE "LOG OF TEST BORINGS" SHEET 1 OF 5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1009	1012

REGISTERED CIVIL ENGINEER 1-12-09

9-7-10
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — KENNETH G. SORENSEN — No. GE 2520 — Exp. 9-30-10 — GEOTECHNICAL — STATE OF CALIFORNIA

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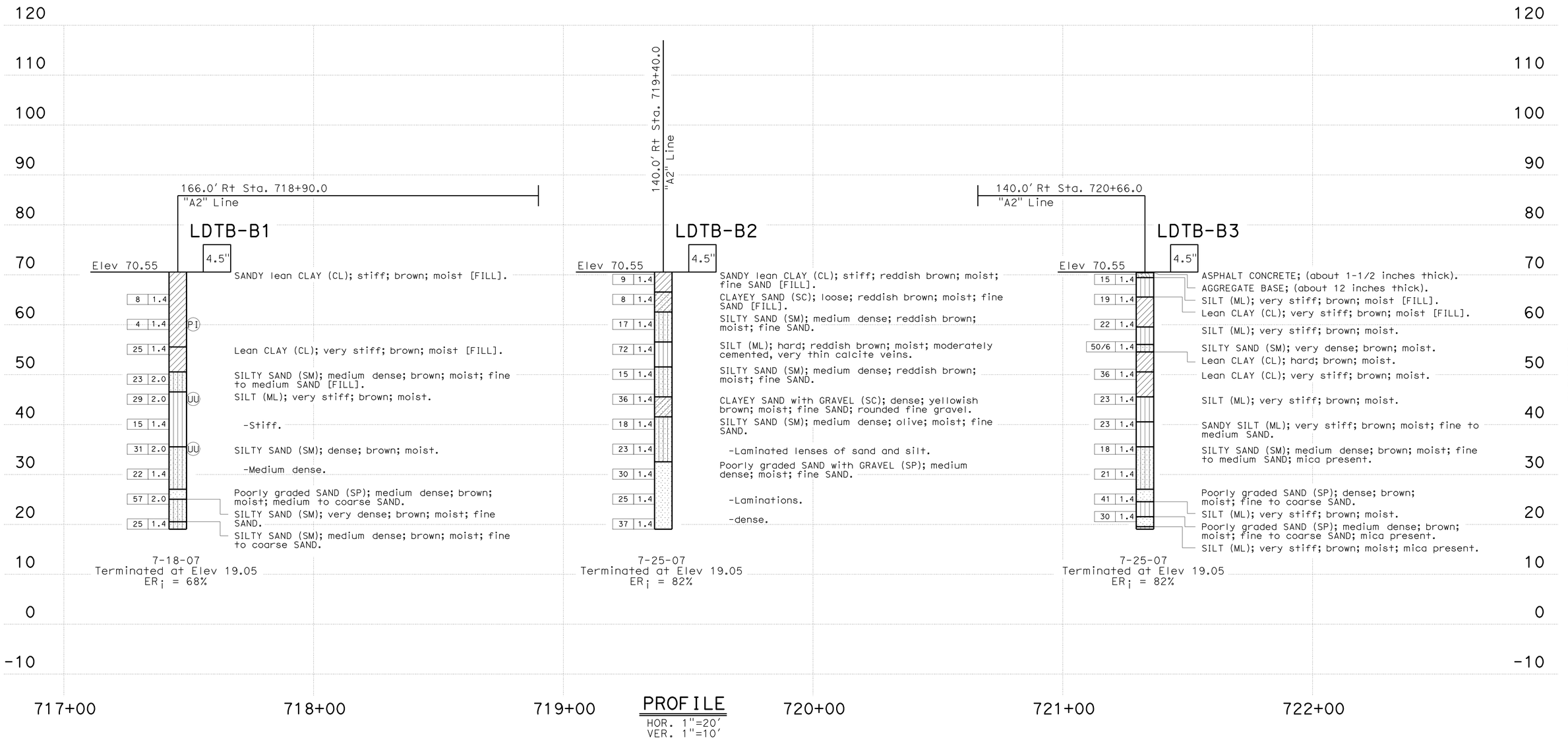
3077 FITE CIR.
SACRAMENTO, CA 95826



GEOTECHNICAL SERVICES OVERSIGHT: J. Martin

FUNCTIONAL SUPERVISOR
NAME: K. Sorensen

DRAWN BY: A. Sanchez
CHECKED BY: G. Zhang

FIELD INVESTIGATION BY:
G. Zhang

PREPARED FOR THE STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 1

BRIDGE NO. 24E0006
POST MILES 9.4

RETAINING WALL 1
LOG OF TEST BORINGS 2 OF 5

OGS CIVIL LOG OF TEST BORINGS SHEET

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 03240
EA 3797U1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 1-14-08, 12-28-08, 1-09-09, 1-12-09

SHEET 16 OF 19

FILE => 24e0006-z-ltb02.dgn

USERNAME => frmhtest DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:39

SOIL LEGEND REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1010	1012

REGISTERED CIVIL ENGINEER — DATE 1-12-09

KENNETH G. SORENSEN, No. GE 2520, Exp. 9-30-10, REGISTERED PROFESSIONAL ENGINEER, GEOTECHNICAL, STATE OF CALIFORNIA

9-7-10
PLANS APPROVAL DATE

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CEMENTATION

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION

Symbol	Hole Type	Description
Size	A	Auger Boring
Size	R P	Rotary drilled boring Rotary percussion boring (air)
Size	R	Rotary drilled diamond core
Size	HD HA	Hand driven (1-inch soil tube) Hand Auger
●	D	Dynamic Cone Penetration Boring
▲	CPT	Cone Penetration Test (ASTM D 5778-95)
⬚	O	Other

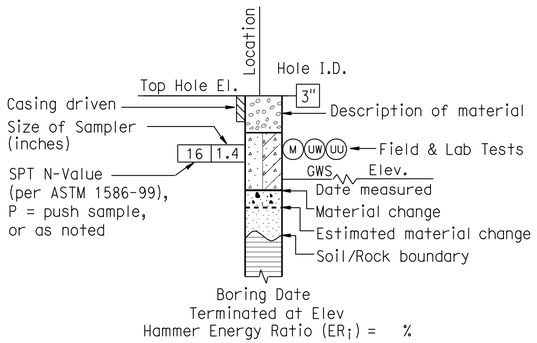
Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS

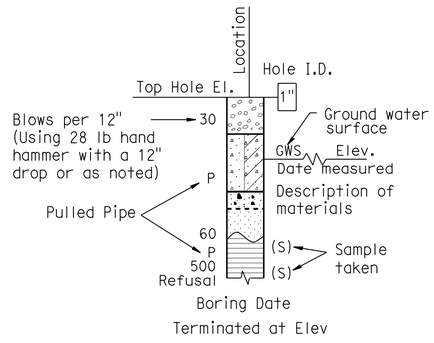
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

PLASTICITY OF FINE-GRAINED SOILS

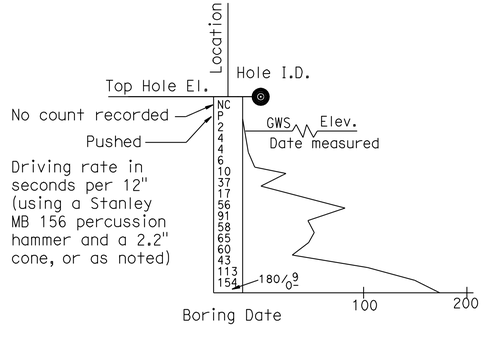
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



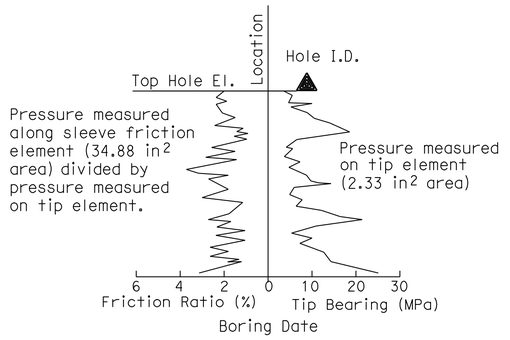
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

GEOTECHNICAL SERVICES OVERSIGHT: J. Martin

FUNCTIONAL SUPERVISOR: K. Sorensen — PREPARED BY: A. Sanchez — CHECKED BY: G. Zhang

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN
DESIGN BRANCH 1

CU 03240
EA 3797U1

BRIDGE NO. 24E0006
POST MILE 9.4

RETAINING WALL 1

LOG OF TEST BORINGS 3 of 5

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES: 7-14-08, 12-22-08, 1-9-09, 1-12-09

SHEET 17 OF 19

FILE => 24e0006-z-ltb03.dgn

USERNAME => ttmikes| DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:39

SOIL LEGEND REFERENCE: CALTRANS SOIL & ROCK LOGGING, CLASSIFICATION, AND PRESENTATION MANUAL (JUNE 2007)

GROUP SYMBOLS AND NAMES

Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
GW	Well-graded GRAVEL Well-graded GRAVEL with SAND	CL	Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
GP	Poorly graded GRAVEL Poorly graded GRAVEL with SAND		
GW-GM	Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND	CL-ML	SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GP-GM	Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND	ML	SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
GP-GC	Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
GM	SILTY GRAVEL SILTY GRAVEL with SAND	OL	ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
GC	CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
GC-GM	SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	OL	ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
SW	Well-graded SAND Well-graded SAND with GRAVEL		
SP	Poorly graded SAND Poorly graded SAND with GRAVEL	CH	Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
SW-SM	Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
SW-SC	Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	MH	Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
SP-SM	Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL		
SP-SC	Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	OH	ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
SM	SILTY SAND SILTY SAND with GRAVEL		
SC	CLAYEY SAND CLAYEY SAND with GRAVEL	OH	ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
SC-SM	SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
PT	PEAT	OL/OH	ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTING

- (C) Consolidation (ASTM D 2435)
- (CL) Collapse Potential (ASTM D 5333)
- (CP) Compaction Curve (CTM 216)
- (CR) Corrosivity Testing (CTM 643, CTM 422, CTM 417)
- (CU) Consolidated Undrained Triaxial (ASTM D 4767)
- (DS) Direct Shear (ASTM D 3080)
- (EI) Expansion Index (ASTM D 4829)
- (M) Moisture Content (ASTM D 2216)
- (OC) Organic Content-% (ASTM D 2974)
- (P) Permeability (CTM 220)
- (PA) Particle Size Analysis (ASTM D 422)
- (PI) Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
- (PL) Point Load Index (ASTM D 5731)
- (PM) Pressure Meter
- (PP) Pocket Penetrometer
- (R) R-Value (CTM 301)
- (SE) Sand Equivalent (CTM 217)
- (SG) Specific Gravity (AASHTO T 100)
- (SL) Shrinkage Limit (ASTM D 427)
- (SW) Swell Potential (ASTM D 4546)
- (TV) Pocket Torvane
- (UC) Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
- (UU) Unconsolidated Undrained Triaxial (ASTM D 2850)
- (UW) Unit Weight (ASTM D 4767)
- (VS) Vane Shear (AASHTO T 223)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
03	Yol,Sac	80	R10.9/R11.7, M0.0/M10.4	1011	1012

REGISTERED CIVIL ENGINEER — 1-12-09 DATE

9-7-10 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — KENNETH G. SORENSEN — No. GE 2520 — Exp. 9-30-10 — GEOTECHNICAL — STATE OF CALIFORNIA

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APPARENT DENSITY OF COHESIONLESS SOILS

Description	SPT N_{60} (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS

Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE

Description		Size
Boulder		> 12"
Cobble		3" to 12"
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

GEOTECHNICAL SERVICES OVERSIGHT: J. Martin

FUNCTIONAL SUPERVISOR: K. Sorensen — PREPARED BY: A. Sanchez — CHECKED BY: G. Zhang

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN — DESIGN BRANCH 1

CU 03240 EA 3797U1

BRIDGE NO. 24E0006 — POST MILE 9.4

RETAINING WALL 1

LOG OF TEST BORINGS 4 of 5

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 7-14-08, 12-29-08, 1-9-09, 1-12-09

SHEET 18 OF 19

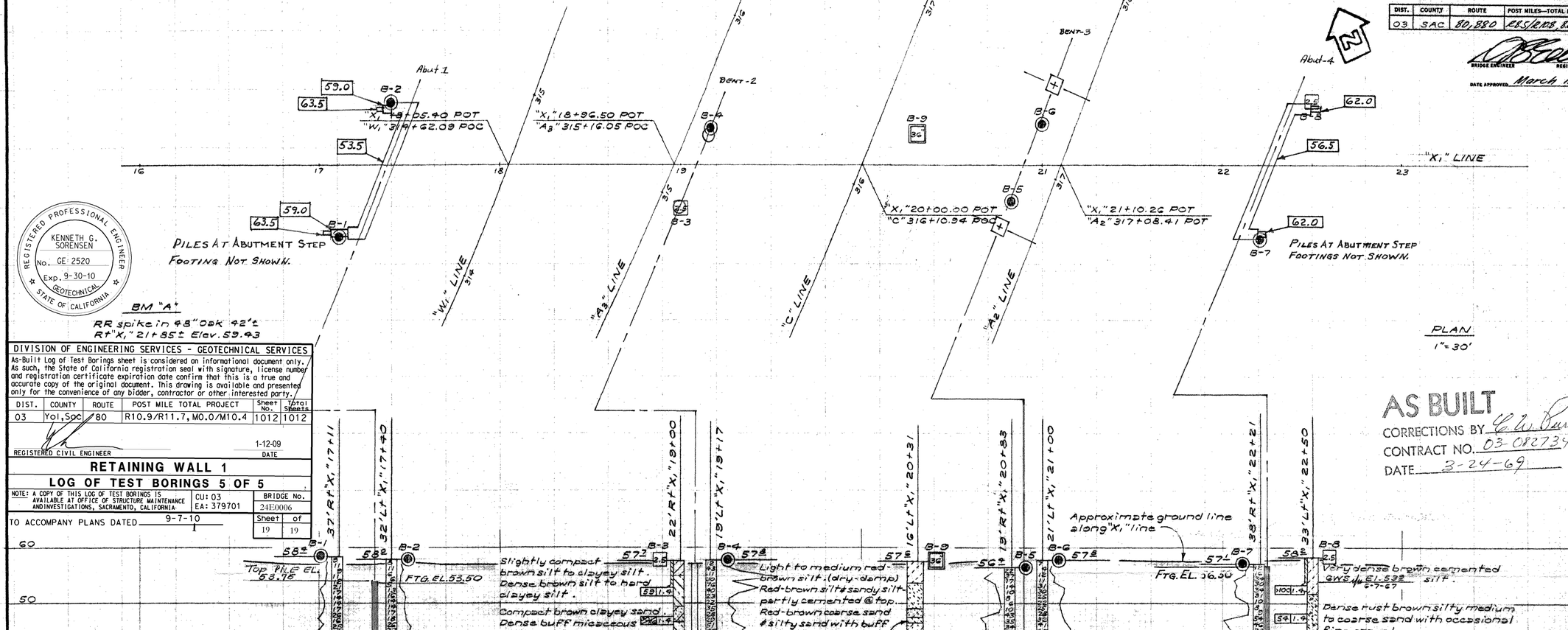
FILE => 24e0006-z-ltb04.dgn

USERNAME => trmikesl DATE PLOTTED => 04-FEB-2011 TIME PLOTTED => 06:39

DIST.	COUNTY	ROUTE	POST MILES—TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
03	SAC	80, 880	R8.5/R11.8, 8.6/10.2	250	254

BRIDGE ENGINEER — REGISTERED CIVIL ENGINEER NO. 9585

DATE APPROVED March 18, 1968



AS BUILT
CORRECTIONS BY E.W. Burkiss
CONTRACT NO. 03-082734
DATE 3-24-69

DIVISION OF ENGINEERING SERVICES - GEOTECHNICAL SERVICES

As-Built Log of Test Borings sheet is considered an informational document only. As such, the State of California registration seal with signature, license number and registration certificate expiration date confirm that this is a true and accurate copy of the original document. This drawing is available and presented only for the convenience of any bidder, contractor or other interested party.

DIST.	COUNTY	ROUTE	POST MILE TOTAL PROJECT	Sheet No.	Total Sheets
03	Yol, Sac	80	R10.9/R11.7, M0.0/M10.4	1012	1012

REGISTERED CIVIL ENGINEER — 1-12-09 DATE

RETAINING WALL 1

LOG OF TEST BORINGS 5 OF 5

NOTE: A COPY OF THIS LOG OF TEST BORINGS IS AVAILABLE AT OFFICE OF STRUCTURE MAINTENANCE AND INVESTIGATIONS, SACRAMENTO, CALIFORNIA

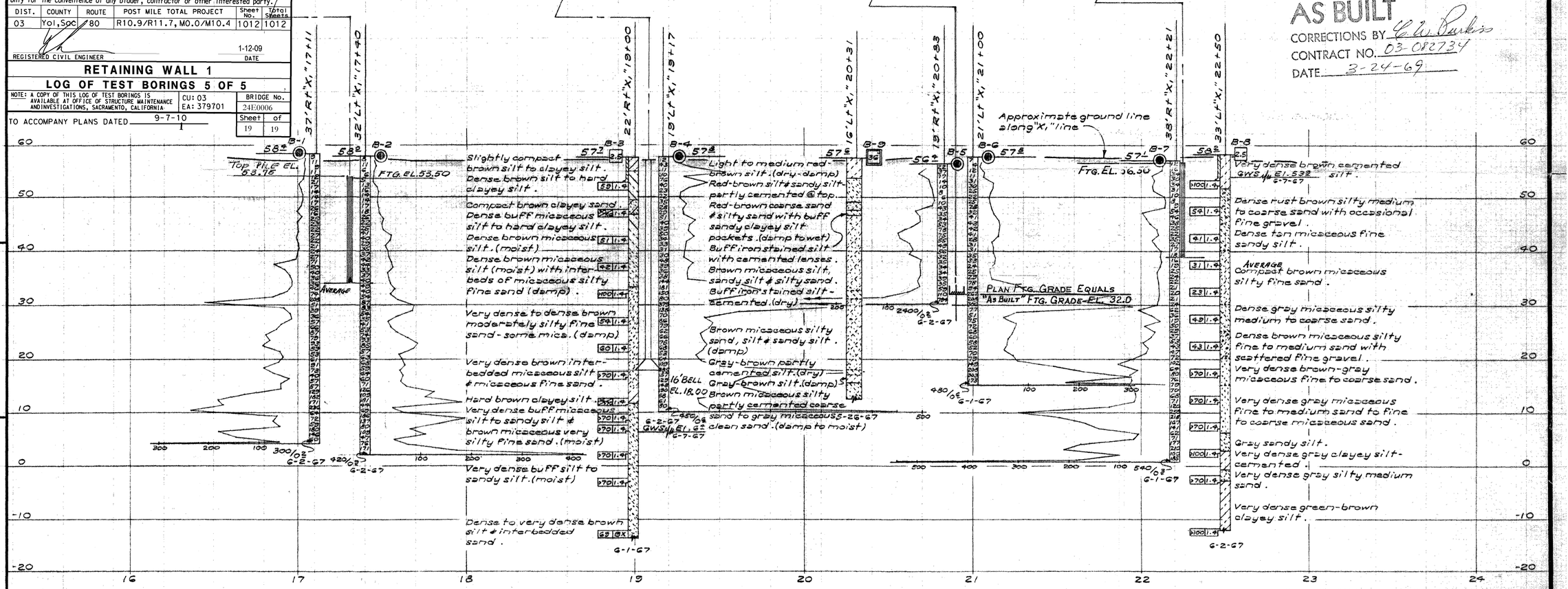
CU: 03
EA: 379701

BRIDGE NO. 24E0006

TO ACCOMPANY PLANS DATED 9-7-10

Sheet 19 of 19

REGISTERED PROFESSIONAL ENGINEER
KENNETH G. SORENSEN
No. GE 2520
Exp. 9-30-10
GEOTECHNICAL
STATE OF CALIFORNIA



NOTE: GWS encountered @ El. -3±. Perched water table also encountered @ El. 532.

PROFILE
Vert. 1"=10'
Horiz. 1"=30'

LEGEND OF BORING OPERATIONS

Penetrometer; 2½" Core Penetrometer; Sampler Boring (SPT); Rotary Boring (WET); Auger Boring (DRY); Jet Boring; Core Boring; Test Pit

Penetration Boring — Rotary Boring — 1" Soil Tube

LEGEND OF EARTH MATERIALS

Gravel; Sand; Silt; Clay; Silty Clay or Clayey Silt; Peat and Organic Matter; Fill Material; Igneous Rock; Sedimentary Rock; Sandy Clay or Clayey Sand; Sandy Silt or Silty Sand; Metamorphic Rock

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

Diagram showing the basis for estimates of grade size distribution used in determining soil classifications.
If gravel is present in appreciable amounts the terms "gravelly" may be added to the class name, viz. "gravelly clay". The terms "coarse", "medium" and "fine" when used to describe sand, silt and gravel refer to standard grade size limits.

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

FIELD STUDY	by T. Nelson	6-67
DRAWN	by K. Ericson	6-9-67
CHECKED	by T. Nelson	6-16-67

Approved Recommended by [signature] Engineering Geologist

BRIDGE DEPARTMENT
ENGINEERING GEOLOGY SECTION

STATE OF CALIFORNIA
TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

LONGVIEW DRIVE OVERCROSSING

LOG OF TEST BORINGS

BRIDGE NO.	POST MILE	DRAWING NO.	SHEET	OF
24-283	9.7	24283-13	16	16

FILENAME => 24e0006-z-ltb05.tif	WO 082731	PR 24283-2	Disregard prints bearing earlier revision dates →	REVISION DATES	(PRELIMINARY STAGE ONLY)
	CU 03208			5/16/67	24e0006-z-ltb05.tif

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